Type of Graph:	When to use:	How to make:	What to look for:
Bar graphs	Categorical data	1. Write category names or labels on *x*-axis at evenly-spaced intervals 2. Label the *y*-axis with the frequency or relative frequency 3. Draw bars above each category using the appropriate frequency or relative frequency. (Bars should be equal width.)	Frequently & infrequently occurring categories.
Pie charts	Categorical data (useful for displaying parts to whole)	1. Draw a circle 2. To calculate the number of degrees for each category, multiply the relative frequencies times $360°$ 3. Draw in each category's "slice" and label	Categories that form large or small proportions of the data set.
Dotplots	Numerical data (small sets)	1. Draw a number line and label it appropriately 2. Place a dot (or X) above the line for each value in the data set, stacking the dots vertically	Center & spread if data, type of distribution, & unusual values
Stem-and Leaf Plots	Numerical data (small to medium sets)	1. Select one (or more) leading digits for stem values and list possible stem values vertically. 2. Record the leaf values (trailing digit(s)) beside the corresponding stem value. 3. Indicate the units for stems and leaves somewhere in the plot	Center & spread if data, type of distribution, & unusual values
Histograms	Discrete numerical data	1. Label the *x*-axis with the possible data values 2. Label the *y*-axis with the frequencies or relative frequencies 3. Draw a rectangle above each value using the appropriate frequencies or relative frequencies for each value. Be sure to center the rectangle above the value	Center & spread if data, type of distribution, & unusual values

Histograms	Continuous numerical data	1. Label the *x*-axis with the boundaries of the class intervals 2. Label the *y*-axis with the frequencies or relative frequencies 3. Draw a rectangle above each interval using the appropriate frequencies or relative frequencies	Center & spread if data, type of distribution, & unusual values
Time plots	Time series data	1. Label the *x*-axis with the appropriate time intervals 2. Label the *y*-axis with the appropriate data values 3. Place a dot above each time interval using the appropriate data value. 4. Connect the dots in sequential order	Trends, cycles, or seasonal variations
Boxplots	Numerical data	1. Draw a horizontal (or vertical) scale and label with the appropriate values 2. Draw a rectangular box from $Q1$ to $Q3$. 3. Draw a vertical (or horizontal) line segment inside the box at the median 4. Extend line segments from the box to the minimum and maximum values 5. ****modified**** – construct "fences" at $Q \pm 1.5IQR$ & $Q \pm 3IQR$; draw line segments to the data values within fences; draw dots for data values outside fences	Center & spread if data, type of distribution, & unusual values
Scatterplots	Bivariate numerical data	1. Label the *x*-axis with the independent variable values 2. Label the *y*-axis with the dependent variable values 3. Place a dot above each *x*-value using the appropriate *y*-value. (Do not connect)	Relationship between the independent and dependent variables